

**STATE WATER RESOURCES CONTROL BOARD  
UNDERGROUND STORAGE TANK REGULATIONS  
TITLE 23, DIVISION 3, CHAPTER 16, CCR  
AMENDMENTS FOR IMPLEMENTATION OF SB 989**

**INITIAL STATEMENT OF REASONS**

**PROBLEM, REQUIREMENT, OR OTHER CONDITON ADDRESSED**

These proposed regulations amend sections 2611, 2630, 2631, 2635, 2636, 2640, 2641, 2660, and 2666; and add new sections 2636.1, 2636.2, 2636.3, 2636.4, 2637 and 2644.1 in Title 23 of the California Code of Regulations (CCR). These regulatory changes are needed in order to implement Health and Safety Code (HSC) sections 25284.1 and 25292.4, and in part, to update the underground storage tank (UST) regulations to reflect the passage of previously established regulatory deadlines.

These amendments to Title 23 will:

1. Require UST owners or operators to conduct triennial testing of UST secondary containment systems, including testing of under-dispenser containment;
2. Require UST owners or operators of UST systems, which have a single-walled component and are located within 1,000 feet of a public drinking water well, to conduct triennial enhanced leak detection. This enhanced leak detection must be a test method that ascertains the integrity of an underground tank system by introduction, and external detection, of a substance that is not a component of the fuel formulation that is stored in the tank system;
3. Require all UST owners and operators, including those who own or operate single-walled UST systems, to install under-dispenser containment by December 31, 2003. Some UST systems must have the under-dispenser containment installed prior to that date.
4. Require persons who conduct UST monitoring equipment annual maintenance certification to have a California contractors license, and be certified, and triennially re-certified, by the manufacturer of the monitoring equipment being tested;
5. Require UST installers to be triennially re-certified by the manufacturer of the tank system being installed

**General Statement of Reasons**

The California legislature enacted Health and Safety Code (HSC) Chapter 6.7, commencing with section 25280, in 1984 and has since amended Chapter 6.7 in response to either federal mandates relating to underground storage tanks, or new information regarding changing industry practices and/or the performance of UST's meeting then current UST regulatory standards in California. In October 1999, the legislature again amended Chapter 6.7 by enacting Senate Bill 989, which

essentially codifies executive order D-5-99. This executive order was the Governor's response to a University of California report on the environmental impacts of MTBE (an additive put into motor vehicle fuel beginning in the late 1980's, early 90's), and requires the phase-out of MTBE in fuel by December 31, 2002.

The University report concluded that, "while MTBE has provided California with clean air benefits, because of leaking underground fuel storage tanks MTBE poses an environmental threat to groundwater and drinking water." This finding was in stark contrast to earlier studies regarding leaks of "pre-MTBE" motor vehicle fuel which concluded that the resulting groundwater plumes were very limited in extent (less than 250 feet), and rarely impacted public drinking water supplies. In comparing the different studies, the relative mobility and persistence in the environment of MTBE versus the most mobile constituents of "pre-MTBE" fuel (i.e. benzene, toluene, ethylbenzene, and xylenes) was illuminated, thus resulting in the subject legislation.

Since current underground storage tank laws and regulations were promulgated absent this new information on MTBE, additional provisions were included in Senate Bill 989 to supplement the phase-out of MTBE with more stringent construction and monitoring standards for underground storage tanks. These new construction and monitoring requirements were mostly based on the recommendations of two SWRCB panels, the Advisory Panel on the Leak History of New and Upgraded UST Systems (Leak History Panel) and the California Leak Monitoring group (CALM). The proposed regulations, where necessary, implement, interpret, and make specific, the newly enacted legislation.

### **EFFORT TO AVOID DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS**

Based on careful review of the federal underground storage tank statutes and regulations, the SWRCB has determined that none of the proposed regulations conflict with, or duplicate, federal rules. The SWRCB proposes to adopt these regulations, which are different from federal regulations, because these differing state regulations are authorized by Health and Safety Code sections 25284.1 and 25292.4.

### **ALTERNATIVES CONSIDERED**

The SWRCB has considered alternatives to these regulations within the scope allowed by HSC sections 25284.1 and 25292.4. These alternatives are discussed in the Detailed Statement of Reasons below. The SWRCB has determined that no alternative to these regulations would be more effective or as effective and less burdensome to the affected industry, local governments, and state agencies than the proposed regulations.

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***DETAILED STATEMENT OF REASONS***

The specific reason for each amended, added, or deleted regulation is summarized below.

*Section 2611. Additional Definitions*

This section defines the terminology used in Chapter 16. The three new definitions, “dispenser”, “under-dispenser containment”, and “spill containment or control system” are needed to implement new Health and Safety Code (HSC) subsection 25284.1, which specifically requires under-dispenser containment for all UST systems by December 31, 2003. Previously, under-dispenser containment was indirectly required by HSC 25291(a)(7)(E), which mandates secondary containment for piping for UST systems installed after July 1, 1987. This requirement for secondary containment includes the piping connected to the dispenser.

*Section 2630. General Applicability of Article*

Subsection 2630(a) is amended to reflect the current state of the law.

Subsection 2630(b) is amended in accordance with HSC section 25291(a)(7), which only allows alternative design and construction requirements for underground storage tank systems installed prior to January 1, 1997.

Subsection 2630(d) is amended to accommodate the new requirements for annual maintenance certification of UST monitoring systems as set forth in subsection 2637(b).

*Section 2631. Design and Construction Requirements for New Underground Storage Tanks*

Subsection 2631(a) is amended in order to ensure that secondary containment systems are designed and installed to be periodically tested in accordance with the secondary containment testing requirements of new section 2637.

*Section 2635. Installation and Testing Requirements for All New Underground Storage Tanks.*

Subsection 2635(d)(1) is amended in response to HSC 25284.1(a)(4)(A), which mandates the SWRCB to adopt regulations requiring underground storage tank installers to meet minimum training standards. The minimum standards set forth by the SWRCB herein are largely based on the SWRCB advisory panel report “Leak History of New and Upgraded UST Systems” which indicates that installation errors account for many of the leaks found in new and upgraded systems. Therefore, periodic installer re-certification is needed to ensure adequate competency in installing UST’s properly. Additionally, UST installers need to continuously update their skills with respect to changing technology and installation methods.

*Section 2636. Design, Construction, Installation, Testing, and Monitoring Requirements for Piping*

The title of Section 2636 is amended to accommodate the new requirements for under-dispenser containment mandated by HSC 25284.1(a)(5).

Subsection 2636(h)(1) is added to codify HSC subsection 25284.1(a)(5). Subsection 2636(h)(2) adds the requirement that under-dispenser containment must be continuously monitored and connected to an audible and visual alarm. This requirement is needed in order to clarify that visual monitoring is not acceptable for under-dispenser secondary containment systems.

Additionally, subsection 2636(h)(3) clarifies and implements the provision in HSC 25284.1(a)(5) that requires the SWRCB to approve dispenser “spill containment or control systems” capable of containing any accidental release.

*Section 2636.1 Action by the Division Regarding Spill Containment or Control Systems;*  
*Section 2636.2 Petition for Board Review Regarding Spill Containment or Control Systems;*  
*Section 2636.3 Defective Petitions; Section 2636.4 Action by the Board*  
*Regarding Spill Containment or Control Systems*

Sections 2636.1 through 2636.4 are added to outline the specific process by which a manufacturer may petition the Division and the Board for review of a determination by the Program Manager regarding the initial approval, or modification or revocation of prior approval of a spill containment or control system.

*Section 2637. Secondary Containment Testing and Annual Maintenance Certification*

Subsection 2637(a) is added because testing of secondary containment systems at the time of installation, and periodically thereafter, is required by HSC 25284.1(a)(4)(B). The initial post-installation test is set at 6 months after installation in order to ascertain the effects on the secondary containment system of factors such as: 1) settlement of the backfill; 2) installation errors (not found during initial testing); and 3) connections that have become separated as an indirect result of (1) and (2).

A 36-month cycle for testing the secondary containment system was chosen as a cost-effective compromise to the annual time-interval recommended by the majority of respondents to a secondary containment testing survey conducted by the SWRCB. The SWRCB believes that the slightly increased benefits to be gained from annual secondary containment testing (versus triennial) do not warrant the added cost to industry.

Subsection 2637(a)(1) is added in recognition of the difficulty, if not impossibility, of periodically testing some existing secondary systems after the first test at installation. However, because open secondary containment systems were initially installed in accordance with Article 3, they must meet the requirements of secondarily contained tank systems. Therefore the enhanced leak detection requirement is only used as an interim measure in lieu of the secondary containment testing requirements, until the secondary containment system can comply with Article 3 by either: 1) being replaced with a system that can be tested periodically; or 2) being tested by a method for adequately testing these systems that is developed within the 5 year interim period. The SWRCB did not want to extend the interim period beyond 5 years for the following reasons: 1) out of fairness to owners and operators of secondary containment systems that are currently able to comply with the secondary containment testing requirements; and, 2) to carry out the intent of the law that all systems installed after July 1, 1987 include effective secondary containment.

Subsection 2637(a)(1) does not prohibit replacement of the secondary containment system with another open secondary containment system. However, the new system must be designed to be periodically tested in accordance these secondary containment testing requirements.

Subsections 2637(a)(2) and (3) are consistent with current SWRCB regulations regarding the testing and installation of UST equipment. These requirements ensure that secondary containment testing is conducted properly such that the results of the testing are reliable. This reliability is obtained by testing the secondary containment in accordance with the specifications of the equipment manufacturer or, if there are no manufacturer specifications for secondary containment testing, in accordance with generally accepted industry practices. In some cases neither of these standards are available or applicable, and thus the local agency needs to specify the testing criteria.

Subsections 2637(a)(4) and (5) are needed in order to keep local agencies updated on the status of the site, and are consistent with the current SWRCB notification and reporting requirements for tank/piping integrity testing (23 CCR, section 2643(g)).

Subsection 2637(a)(6) is needed in order to provide an exemption for secondary containment monitoring systems that automatically and continuously test the secondary containment system by virtue of their design. Brine filled and pressure/vacuum systems rely on changes in the status of the monitoring medium in order to indicate potential leaks from the primary tank system. However, by the nature of this design, the monitoring system also works just as well for detecting leaks in the secondary containment since there may be loss of brine, or pressure loss/gain, through a breach in the secondary containment.

Subsection 2637(b) is a rewrite of former section 2630(d). Section 2637(b)(1)(A) implements the licensing requirements established for annual monitoring equipment certification pursuant to HSC section 25284.1(a)(5)(D).

Subsections 2637(b)(1)(B) and (C) are needed to ensure that annual maintenance technicians are adequately trained, and remain current with respect to the equipment installed at the facility being tested. Thirty-six months was chosen for periodic refresher training because this interval was shown to be an adequate balance, based on the best professional judgment of SWRCB staff, between the cost (in money and time) of recurrent training versus the need for the training. In making this decision, the SWRCB considered the following factors: 1) the rapidly evolving technology of leak detection equipment; 2) the large variety of leak detection equipment currently being used by industry; and 3) the frequency by which the work is conducted.

Subsection 2637(b)(2) is needed because a specific reporting form: 1) provides consistency for annual maintenance inspections; and 2) can be used as a checklist to ensure that all necessary work is completed.

Subsections 2637(b)(3) and (4) are needed in order to keep local agencies updated on the status of the site and are consistent with the current SWRCB notification and reporting requirements for tank/piping integrity testing (23 CCR, section 2643(g)).

Subsection 2637(b)(5) includes the requirement to affix a tag/sticker on each monitoring equipment component involved in the annual maintenance certification because these tags/stickers will indicate to local agency staff that at least the equipment was touched during the inspection. This requirement was recommended by the California Leak Monitoring Group report.

*Section 2640. General Applicability of Article.*

Amendments to subsection 2640(c) are editorial and have no regulatory effect.

Subsection 2640(e) is added in order to implement the enhanced leak detection requirements of HSC 25292.4(a). The exemptions specified in 2640(e)(1) are the same as those allowed for new

double-walled systems. The reconsideration clause in 2640(e)(2) and (3) allows tank owners or operators to contest SWRCB notification in cases where they believe this notification was done in error thereby obtaining relief from the enhanced leak detection requirements.

*Section 2641. Monitoring Program Requirements*

*Subsection 2641(j) is amended to accommodate the new requirements for annual maintenance certification of UST monitoring systems set forth in subsection 2637(b).*

*Section 2644.1 Enhanced leak Detection*

Section 2644.1 is added to specify the requirements for enhanced leak detection in accordance with HSC 25292.4(a). Subsections 2644.1(a)(1) and (2) represent the SWRCB's chosen methodology and performance requirements for implementation of the enhanced leak detection provisions of HSC 25292.4(c). In preparing these requirements, the SWRCB complied with the provisions in HSC 25292.4(c) that the SWRCB shall: 1) consult with the petroleum industry, local governments, environmental groups, and other interested parties to assess the appropriate technology and procedures to implement the enhanced leak detection or monitoring program; and 2) consider existing leak detection technology (internal methods) and external monitoring techniques or procedures for underground tanks. The above was accomplished by holding a staff level public meeting on October 28, 1999; and through full consideration of related written comments submitted to the SWRCB which proposed both internal and external methods and technology for enhanced leak detection.

In evaluating options for enhanced monitoring, the SWRCB weighed several factors including method sensitivity, reliability, initial and repeated costs, and potential interruption of business activities. Regarding method sensitivity and reliability, the SWRCB looked for a cost-effective method that was more sensitive than current monitoring techniques while maintaining the same reliability. The SWRCB believes that increased sensitivity is necessary to determine if single-walled underground storage tanks are leaking below the regulatory established monitoring sensitivities for the various single-walled monitoring methods. The SWRCB suspects such slow leaks may be occurring given that fuel leaks impacting soil and groundwater have been discovered (during removal) under, and around, many single-walled UST's with no record of any unauthorized releases in their monitoring history. Since 0.1 gph is currently the highest sensitivity required for leak detection monitoring in California, in order to achieve the above goal, the enhanced leak detection sensitivity is set at 0.05 gph, or less.

The California reliability standard (adopted from federal standard 40 CFR 280.40(a)(3)) is a leak detection monitoring performance standard for the probability of detection (PD) and probability of false-alarm (PFA). This standard is the same regardless of the method sensitivity established in the UST regulations and is set at 95% PD and 5% PFA (i.e. 95/5 reliability). Thus, statistical inventory reconciliation (SIR) which, by California regulation, has a sensitivity set at 0.2 gph, must meet the same reliability standard as a tank-tightness test which has a sensitivity set at 0.1 gph. The SWRCB also looked at additional aspects of monitoring method reliability, such as the method's ability to find the location of a leak, and its reliability in determining if detected leaks

came from the tank and piping rather than spills and overfills, from prior tank operations, or other sources.

Only one of the proposed enhanced leak detection methods was able to meet all of the SWRCB requirements for enhanced leak detection. This was an external monitoring method using a benign chemical, with unique characteristics, introduced into the tank and monitored outside the tank system via a network of sensitive probes.

The internal monitoring methods proposed (i.e. automatic tank gauging and statistical inventory reconciliation) were unable to meet the reliability standard at a leak-rate sensitivity less than 0.1 gph. This was also true for the other proposed external methods (i.e. fuel vapor monitoring, ground water monitoring, and soil and ground water investigations). Additionally, these methods were unable to locate a leak or clearly determine if a fuel component came from the tank system, from spills and overfills, from previous tank operations, or other sources.

Subsection 2644.1(a)(3) codifies the provision in HSC 25292.4(a) that UST owners or operators, who are required to conduct enhanced leak detection, implement a program of enhanced leak detection by November 1, 2000. The November 1, 2000 deadline was not specified in the regulations since the UST owner or operator needs to first be identified by the SWRCB according to its Geographic Information System (GIS) mapping database, in order to know for certain their facility is located within 1,000 feet of a public drinking water well. The SWRCB expects to have made all notifications months before the November 1, 2000 deadline. A 36-month cycle for enhanced leak detection was chosen as a cost-effective compromise to a 12- or 24-month cycle. The SWRCB determined that a 12- or 24-month cycle would not provide additional protection of public drinking water wells commensurate with the added cost of enhanced leak detection.

Subsections 2644.1(a)(4) and (5) are needed in order to keep local agencies updated on the status of enhanced leak detection at the site, and to provide the results of the enhanced leak detection to the local agency and the SWRCB. With the exception of reporting the results to the SWRCB, these requirements are consistent with the current SWRCB notification and reporting requirements for tank/piping integrity testing (23 CCR, section 2643(g)).

*Section 2660. General Applicability of Article*

Subsection 2660(h) is amended to accommodate the new under-dispenser requirements for single-walled tank systems in accordance with HSC 25284.1(a)(5)(C).

*Section 2666. Requirements for Upgrading Underground Piping.*

The title of section 2666 is amended, and subsection 2666(e) is added, in order to implement the new under-dispenser requirements for single-walled tank systems in accordance with HSC 25284.1(a)(5)(C)